SONY KV-2022PM

MODEL

SERVICE MANUAL

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

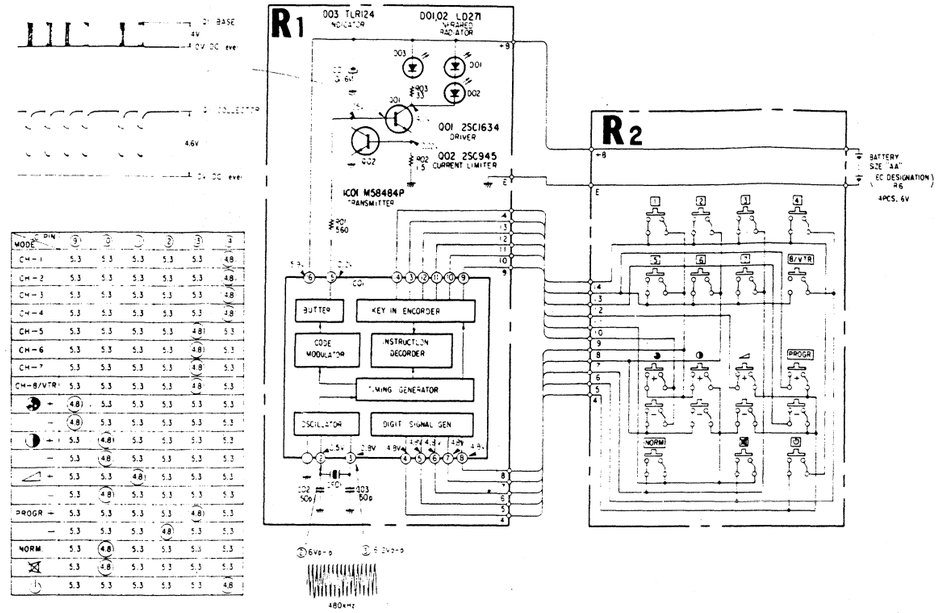
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND ⚠ MARK ON THE SCHEMATIC DIAGRAMS ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THE PARTS LIST ON THIS BASIC SCHEMATIC DIAGRAM OR IN THE SERVICE MANUAL. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THE SERVICE MANUAL PUBLISHED BY SONY. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼ W unless otherwise noted. k: 1000 Ω, M: 1000 kΩ
- : nonflammable resistor.
- △ : internal component.
- ▭ : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

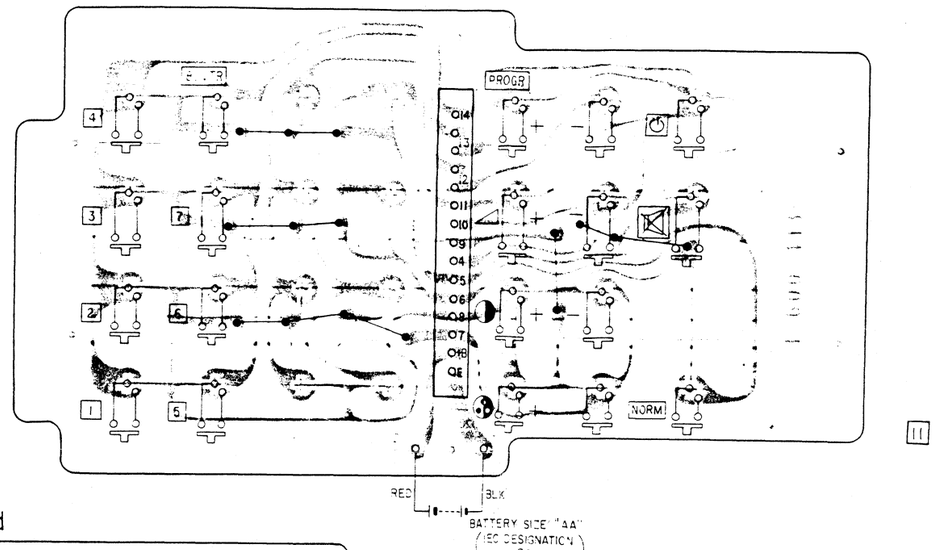
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 20,000-ohm-per-volt VOM.
- ▭ : adjustment for repair.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.

REMOTE COMMANDER RM-604

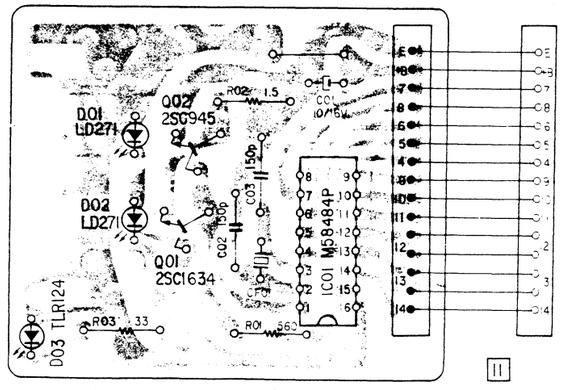


PIN / MODE	⑨	⑧	—	②	③	①
CH-1	5.3	5.3	5.3	5.3	5.3	4.8
CH-2	5.3	5.3	5.3	5.3	5.3	4.8
CH-3	5.3	5.3	5.3	5.3	5.3	4.8
CH-4	5.3	5.3	5.3	5.3	5.3	4.8
CH-5	5.3	5.3	5.3	5.3	4.8	5.3
CH-6	5.3	5.3	5.3	5.3	4.8	5.3
CH-7	5.3	5.3	5.3	5.3	4.8	5.3
CH-8/VTR	5.3	5.3	5.3	5.3	4.8	5.3
+	4.8	5.3	5.3	5.3	5.3	5.3
−	4.8	5.3	5.3	5.3	5.3	5.3
+	5.3	4.8	5.3	5.3	5.3	5.3
−	5.3	4.8	5.3	5.3	5.3	5.3
+	5.3	5.3	4.8	5.3	5.3	5.3
−	5.3	4.8	5.3	5.3	5.3	5.3
PROGR +	5.3	5.3	5.3	5.3	4.8	5.3
−	5.3	5.3	5.3	4.8	5.3	5.3
NORM	5.3	4.8	5.3	5.3	5.3	5.3
⊠	5.3	4.8	5.3	5.3	5.3	5.3
⏻	5.3	5.3	5.3	5.3	5.3	4.8

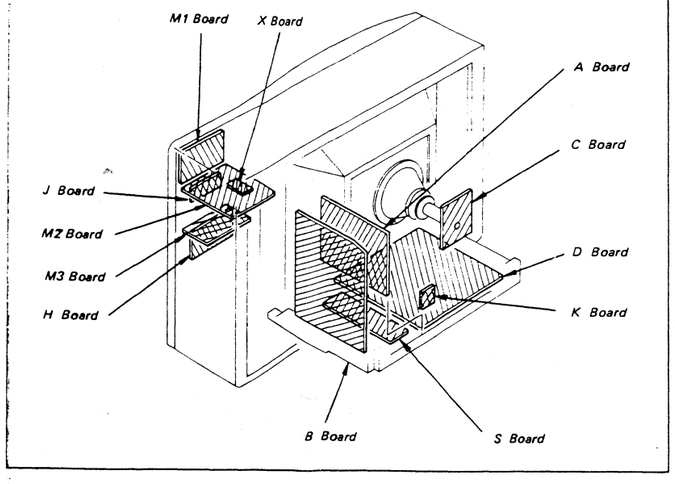
R2 board



R1 board



CIRCUIT BOARDS LOCATION



C Tuner-Modul

Ant.-Weiche
Ant.-comb
UHF Pre-ampl.
VHF Pre-ampl.
Osz u. Mix.
VHF-Osz.
UHF-ZF IF VHF-Mix
AGC
AFC Spannung / voltage

D ZF/IF-Modul (AFC)

ID 01
ZF-Vorverst. IF Pre-ampl.
ZF/IF Selection
Abstimmspannung-Stab. Tuning voltage stab.
33.4 MHz 38.9 MHz 40.4 MHz Fallen Traps
Referenz-Verstärker ref. amplifier
Geregelter ZF-Verstärker contr. IF ampl.
Synchron-Demodulator sync. demod
Video-Verstärker Video-amplifier
Regel-Verstärker Control amplifier
Tuner-Regelung Tuner control
AFC Discriminator
5.5 MHz Fal. 5.5 MHz Fal.
Tuner AGC
U2
Video ZF IF Ein/Aus On/Off
AFC Schalter switch
U6 12V

U6 12V
Ausgang Output
U5 20V
IL 01
Stann. Stab. Voltage reg.
Keramik Filter 5.5 MHz
Austastung Blanking
G4
Extrs
MS
L Ton/Audio-Modul
Synchron Demodulator
Begrenzer Limiter
Scann. Stab. Voltage reg.
Ungeregelt. Verst. Uncontrolled audio amplifier
Geregelt. Verst. Controlled audio amplifier
IL 02
Verstärker Amplifier
Vorverstärker Pre-amplifier
Endstufe Audio Output stage
Endstufe Audio Output stage
IL 03
Lautstärke Volume control
Eingang Input
Tonblende Tone control

vom ZF-Modul Pkt. 11 from IF-module point 11
-BAS zum Amp.-Sieb to sync. sep.
U6 12V
Helligkeit brightness
Austastung keying
Y-Ausgang Y-output
U6 12V

G Signal-Modul

IG 01
Ansteuerschaltung Y-Verzögerungsleitung matching circuit for Y-delay line
Umkehrstufe reversing stage
Kontrastentst. contrast adjusting stage
Austast-, Eintast-Schwarzwertklemmung keying-in, black level clamping
Geregelter Farbartverst. chroma amplifier
Kontrastentst. contrast adjusting stage
Sättigungsentst. saturation adjustment stage
Geschaltete Verstärkerstufe Switched amplifier stage
Regelspannungsverstärker control voltage amplifier
Schwellendetektor threshold detector
Laufzeitdecoder verzögerungs DL 60 u. Matrix delay line decoder DL 60 a. matrix
8.8 MHz
IG 02
2 Teiler mit 90° Ausgangssignalen 2:2 divider with 90° output sign.
Referenz-Osz. reference osc.
Farbschalter colour switch
(R - Y) Demodulator
(G - Y) Matrix
PAL-Flipflop mit Identifikation PAL-flipflop with identification
PAL-Schalter PAL-switch
(B - Y) Demodulator
Farbsynchronsignal-Torschaltung Diskriminator colour sync. sig. gate circuit discr.
Hi2 Demodulator
Regelspannungsverstärker control voltage amplifier
Schwellendetektor threshold detector
Ausgangsstufe output stage
Ausgangsstufe output stage
Ausgangsstufe output stage
Kontrast contrast
Farbsättigung colour saturation

J Videc-Modul

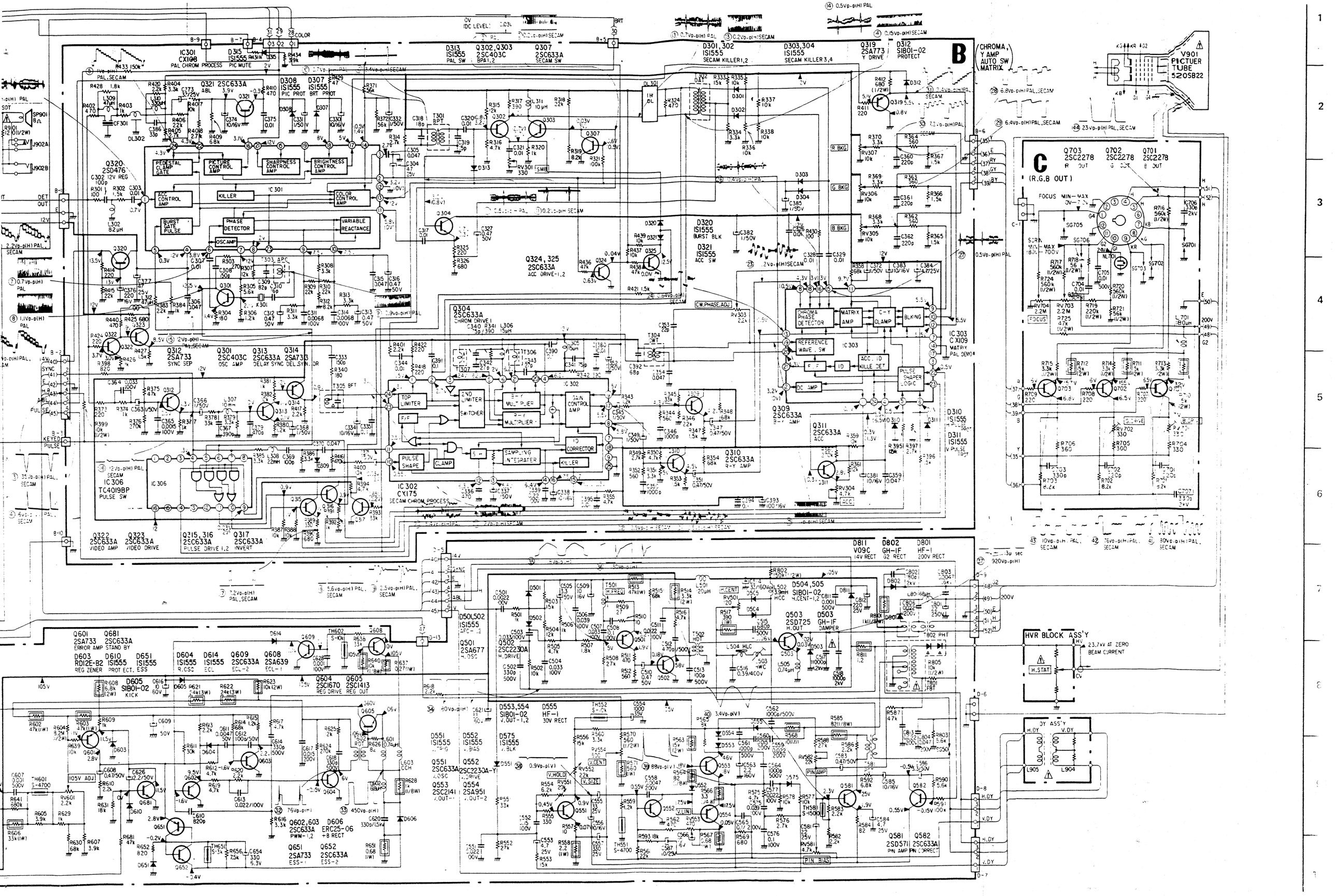
IJ 01
R-Matrix
G-Matrix
B-Matrix
Differenzverstärker Amplifier
Differenzverstärker Amplifier
Differenzverstärker Amplifier
Video-Endstufe Video-output stage
rot red
Video-Endstufe Video-output stage
grün green
Video-Endstufe Video-output stage
blau
U2 200V
rot red
grün green
blau blue
250V
VWCL 2AT
25 KV

M Vertikal-Modul
Miller Integrator
Impulsformer und Treiber
Ost-West-Endstufe East-West output stage
Vertikal Oszillator
Verstärker
Vertikal-Endstufe Output stage
P Ost/East-West-Modul
Niedervolt-stromversorgung Low voltage power supply
U3 36V

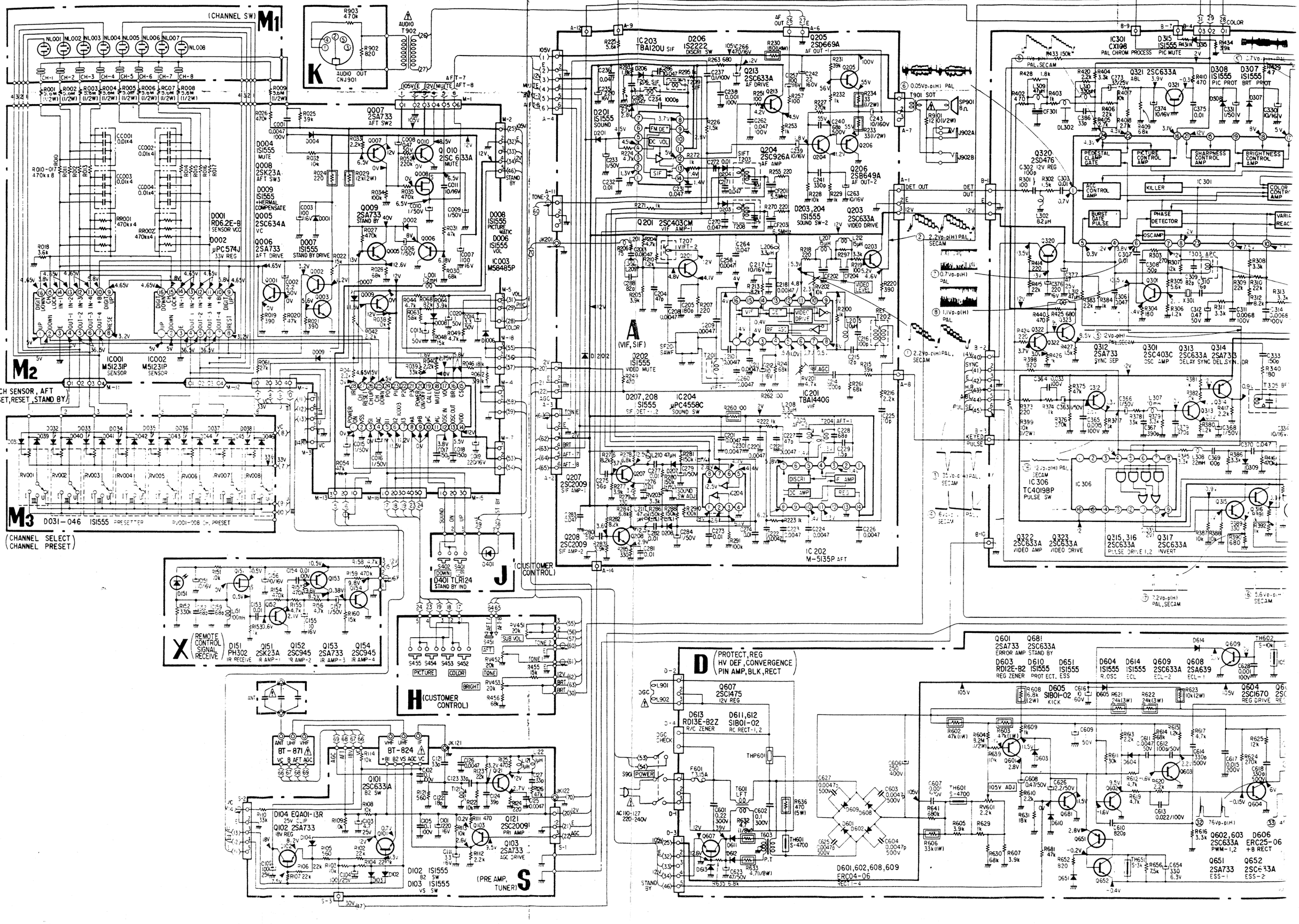
D18
RA15
CA10
25 KV
Kaskade HT-Impuls
Bildlage vertikal Vertikal picture pos.
Nord-Süd-Raster Korrektur North-South raster corr
Bildlage horizontal Horizontal picture pos.
Quadrat-cor. Quadra cor.
Nord-Süd-Modul
S North-South module

U Horiz.-Endstufe/ Output stage
bei U Netz = 220V RMS
U1 290V
U5 20V
U2 200V
U5 (U8) Spannungserzeugung Voltage production
Hinlaufschaltg Trace
Rücklaufschaltg Retrace
Abschaltstufe Circuit breaker
Regelstufe Control circuit
MODUL Z
U4 28V
220 V~
R Netz/Power-Modul

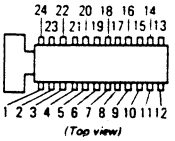
Z Horiz.-Generator-Modul
28V vom/from Modul
Impedance Transform
Phasen Modulator
IZ 01
Horiz. Osz. und Amplitudenteil Horiz. osc. and amp. separator
Abschaltstufe Circuit breaker
Horiz. Treiberstufe Line driver
RA28
LA05
LA04
CA28


B
C
IC301 CX108 PAL CHROM PROCESS PIC MUTE
D315 ISI555 PIC MUTE
Q321 2SC633A ABL
D308 ISI555 PIC PROT
D307 ISI555 BRT PROT
Q320 2SD476 12V REG
PEDESTAL CLAMP GATE
PICTURE CONTROL AMP
SHARPNESS CONTROL AMP
BRIGHTNESS CONTROL AMP
ACC CONTROL AMP
KILLER
COLOR CONTROL AMP
BURST GATE PULSE
PHASE DETECTOR
VARIABLE REACTANCE
OSCAMP
Q301 2SC403C OSC AMP
Q312 2SA733 SYNC SEP
Q313 2SC633A DELAY SYNC DEL.SYN. DR
Q314 2SA733
Q322 2SC633A VIDEO AMP
Q323 2SC633A VIDEO DRIVE
IC306 TC4019BP PULSE SW
Q215,316 2SC633A PULSE DRIVE 1,2
Q317 2SC633A INVERT
T301 BPT
T305 BFT
IC302 CX175 SECAM CHROM PROCESS
TOP LIMITER
END LIMITER SWITCHER
B-Y MULTIPLIER
R-Y MULTIPLIER
MAIN CONTROL AMP
ID CORRECTOR
SAMPLING INTEGRATER
PULSE SHAPE
CLAMP
KILLER
F/F
D313 ISI555 PAL SW
Q302,Q303 2SC403C BPA1,2
Q307 2SC633A SECAM SW
D301,302 ISI555 SECAM KILLER 1,2
D303,304 ISI555 SECAM KILLER 3,4
Q319 2SA773 Y DRIVE
D312 SIB01-02 PROTECT
DL301 1H DL
DL302
Q304 2SC633A CHROM DRIVE 1
Q324,325 2SC633A ACC DRIVE-1,2
D320 ISI555 BURST BLK
D321 ISI555 ACC SW
CW.PHASE.ADJ
IC303 CX109 MATRIX PAL DEMO
CHROMA PHASE DETECTOR
MATRIX AMP
C-Y CLAMP
BLKING
REFERENCE WAVE . SW
ACC . ID KILLE DET
PULSE SHAPER LOGIC
DC AMP
Q309 2SC633A R-Y AMP
Q311 2SC633A ACC
D310 ISI555
D311 ISI555
R BKG
G BKG
B BKG
Q703 2SC2278 R OUT
Q702 2SC2278 G OUT
Q701 2SC2278 B OUT
(R.G.B OUT)
V901 PICTUER TUBE 520SB22
CHROMA, Y AMP AUTO SW MATRIX
Q601 Q681 2SA733 2SC633A ERROR AMP STAND BY
D603 RD12E-B2 REG ZENER
D610 ISI555 PROTECT
D651 ISI555 ESS
D604 ISI555 R.OSC
D614 ISI555 ECL
Q609 2SC633A ECL-2
Q608 2SA639 ECL-1
D605 SIB01-02 KICK
Q604 2SC1670 REG DRIVE
Q605 2SC1413 REG OUT
Q606 RDT
T601 FBT
T602 H.OUT
T603 APC
D501,502 ISI555 APC-1,2
Q501 2SA677 H.OSC
Q502 2SC2230A H.DRIVE
Q503 2SD725 H.OUT
D503 GH-IF DAMPER
D504,505 SIB01-02 H.CENT-1,2
D811 V09C 14V RECT
D802 GH-IF G2 RECT
D801 HF-1 200V RECT
T501 H.FREQ
T502 H.OUT
T801 FBT
L504 HLC
L505 0.74μH
L501 20μH
L502 3.9mH HCC
HVR BLOCK ASS'Y
23.7kV AT ZERO BEAM CURRENT
H.STAT
DY ASS'Y
H.DY
V.DY
L905
L904
D551 ISI555 V.BLK
D552 ISI555 V.BIAS
D553,554 SIB01-02 V.OUT-1,2
D555 HF-1 30V RECT
D575 ISI555 V.BLK
Q551 2SC633A V.OSC
Q552 2SC2230A-Y V.DRIVE
Q553 2SC2141 V.OUT-1
Q554 2SA951 V.OUT-2
V.HOLD
V.CENT
V.SIZE
V.LIN
Q602,603 2SC633A PWM-1,2
D606 ERC25-06 +B RECT
Q651 2SA733 ESS-1
Q652 2SC633A ESS-2
Q581 2SD571 PIN AMP
Q582 2SC633A PIN CORRECT
PIN BIAS
105V ADJ
SP901 8Ω
J902A
J902B
R9101 12Ω(1/2W)
DET OUT
KEYED PULSE
SECAM
PAL
SYNC
H.D
V.D
ABL
PULSE
0V (DC LEVEL)
BRT
COLOR
IC.B(5.8V)
105V
14V
12V
5V
3.2V
2V
1.4V
0.6V
0.5V
0.3V
0.1V
0V
-0.2V
-1.6V
-34V
75Vp-p(H)
450Vp-p(H)
80Vp-p(H)
920Vp-p(H)
200V
150V
50V
6.5V
6.8V
9.7V
10.5V
11.5V
13.5V
0.5Vp-p(H) PAL
0.7Vp-p(H) PAL
1.2Vp-p(H) PAL,SECAM
2.2Vp-p(H) PAL,SECAM
2.5Vp-p(H) PAL,SECAM
3.4Vp-p(H) SECAM
5.6Vp-p(H) PAL,SECAM
6.4Vp-p(H) PAL,SECAM
7.2Vp-p(H) PAL,SECAM
12Vp-p PAL,SECAM
23Vp-p(H) PAL,SECAM
0.15Vp-p(H) SECAM
0.2Vp-p(H) SECAM
0.5Vp-p(H) PAL
0.5Vp-p(H) SECAM
0.7Vp-p(H) PAL
0.8Vp-p(H) PAL
0.9Vp-p(H)
1.2Vp-p(H) SECAM
2.5Vp-p(H) PAL
2.5Vp-p(H) SECAM
3.4Vp-p(H) SECAM
5.6Vp-p(H) PAL
6.4Vp-p(H) PAL,SECAM
7.2Vp-p(H) PAL
7.6Vp-p(H) SECAM
10Vp-p(H) PAL,SECAM
23Vp-p(H) PAL,SECAM
30Vp-p(H)
80Vp-p(H) PAL,SECAM
0.4Vp-p(H) PAL
0.5Vp-p(H) PAL
0.5Vp-p(H) SECAM
0.9Vp-p(V)
3.4Vp-p(V)
88Vp-p(V)
920Vp-p(H)
3μ sec

SCHEMATIC DIAGRAM



CX108
CX109
CX175



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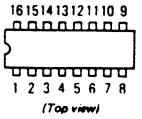

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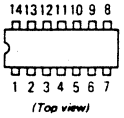

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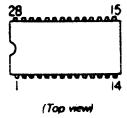

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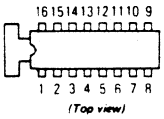

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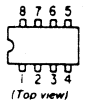

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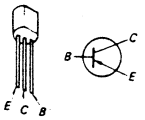

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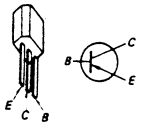

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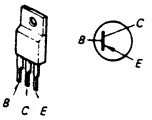

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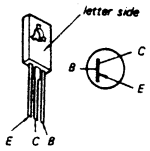

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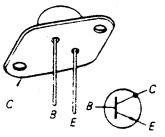

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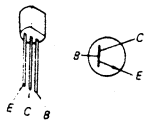

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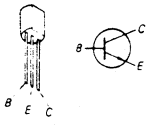

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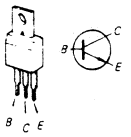

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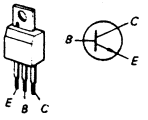

2SC403C
2SC403CM
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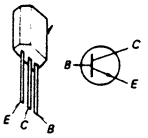
2SC634A
2SC926A



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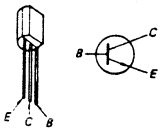
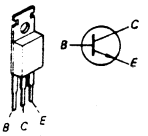
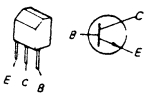


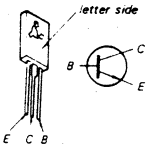
2SD476



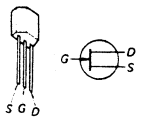
2SD571



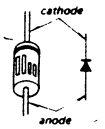
2SD669A



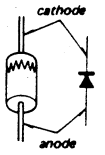
2SK23A



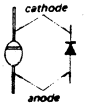
EQA01-13R
RD12E-B2
SIB01-02



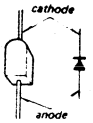
ERC04-06
ERC25-06



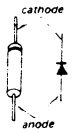
GH1F
V09C



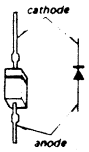
HF1



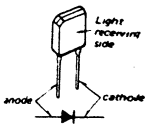
1S1555
RD6.2E-B
RD13E-B2Z



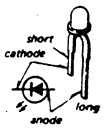
1S2222



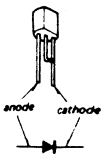
PH302



TLR124



μPC574J

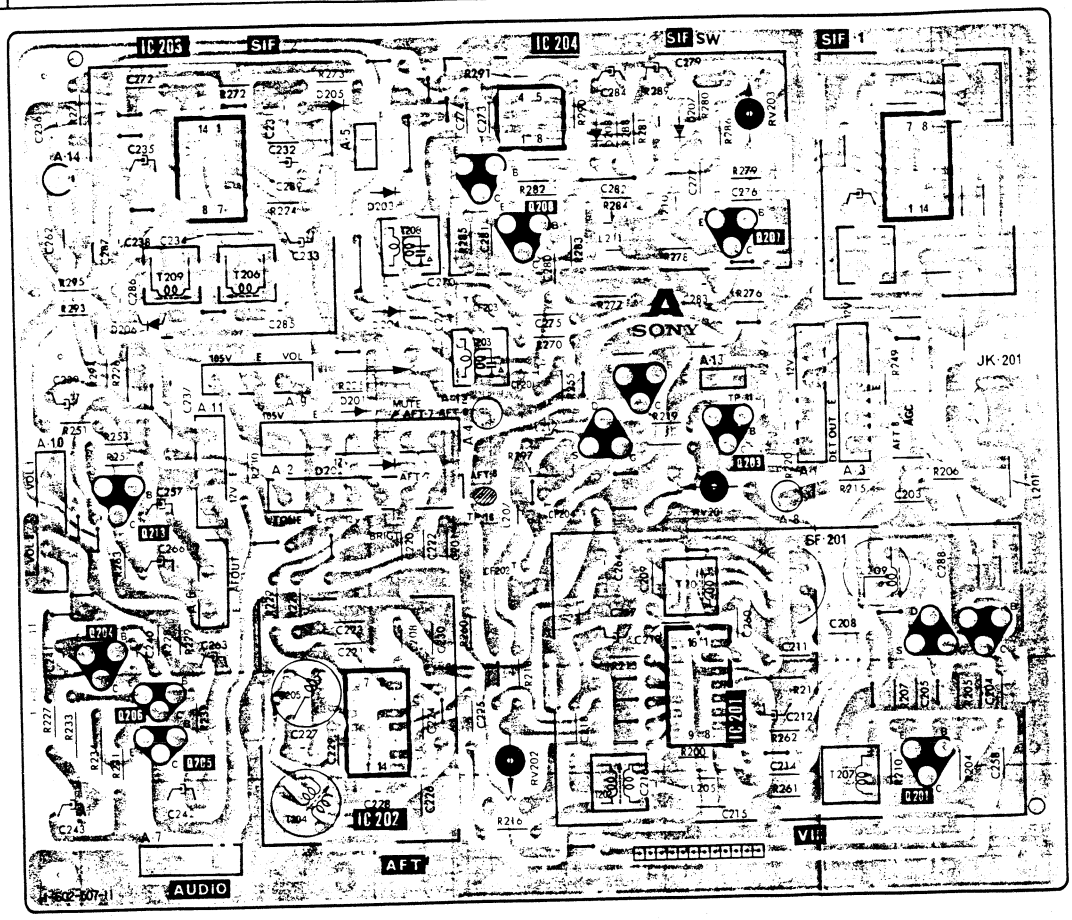


MOUNTING DIAGRAM

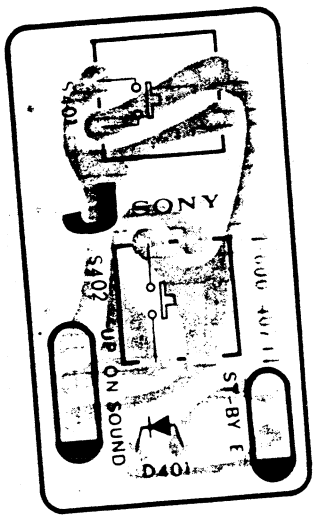
Note: All mounting diagrams are viewed from conductor side.

A (VIF, SIF)

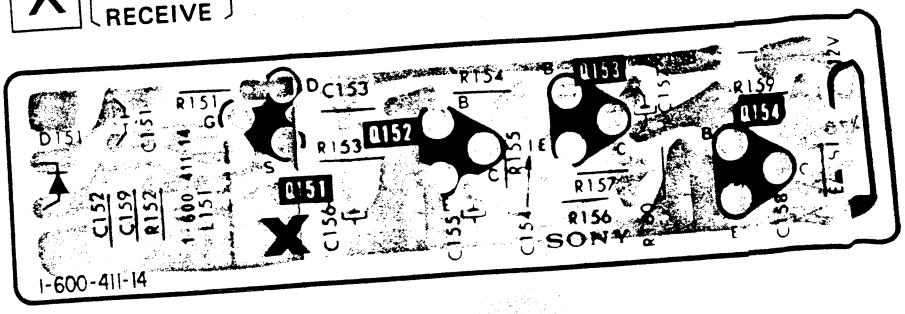
Q,IC	213 204 206,205	IC203	IC202	IC204 208	207,203 IC201	201	Q,IC
D	206		203 201, 204,202	208	207		D
ADJ			RV202		RV201 RV203		ADJ



J CUSTOMER CONTROL

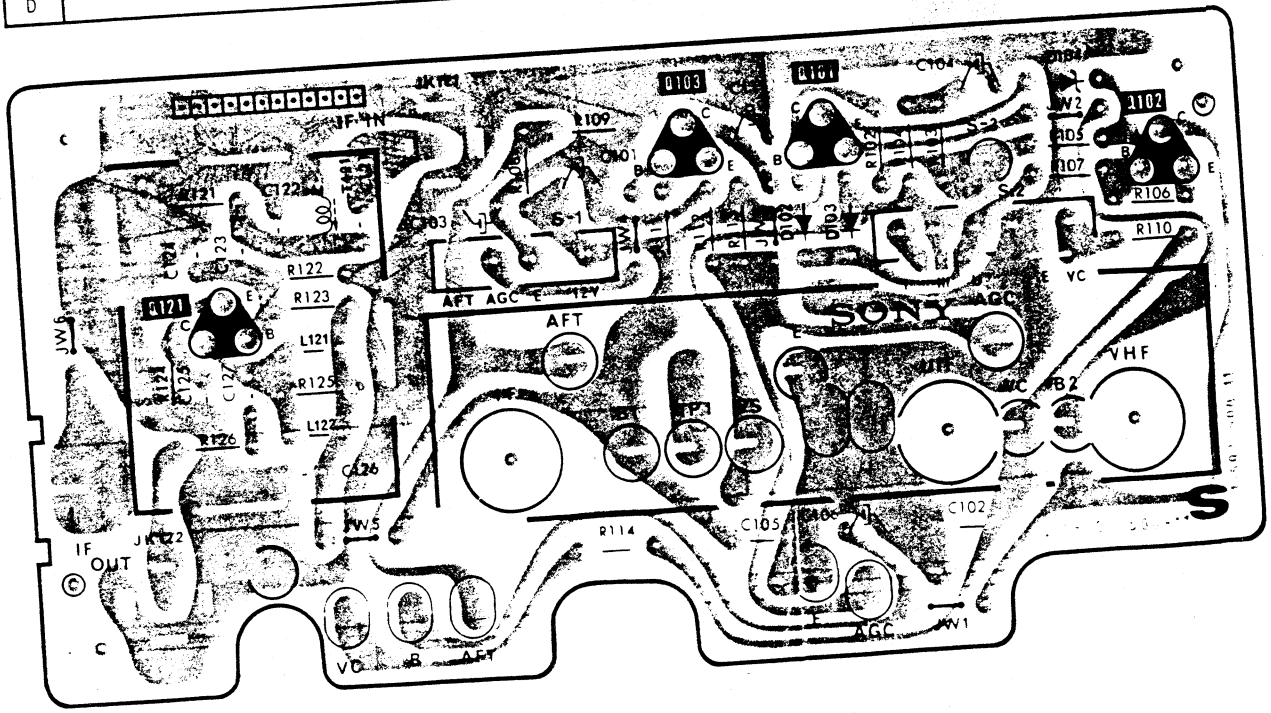


X REMOTE CONTROL SIGNAL RECEIVE



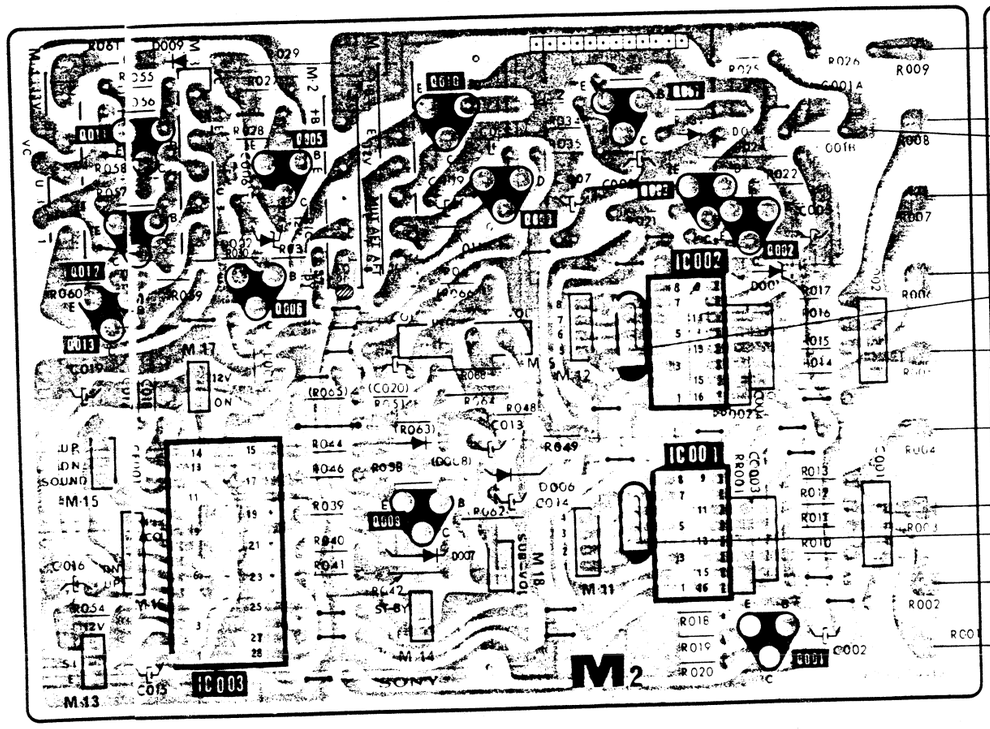
S PRE AMP, TUNER

Q	121				103		101					102	Q
D							102 103			104			D

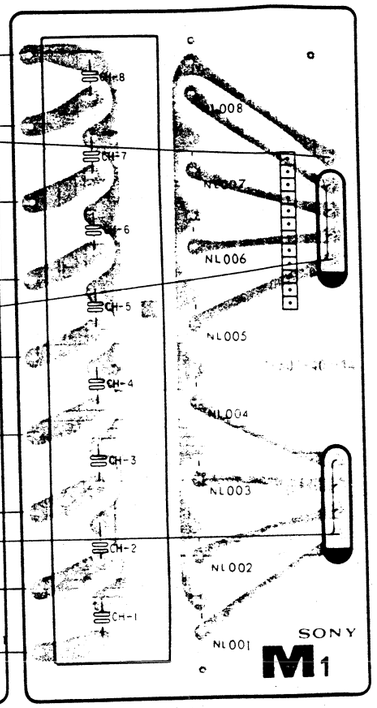


M2 (TOUCH SENSOR, AFT ICH SET, RESET, STAND BY)

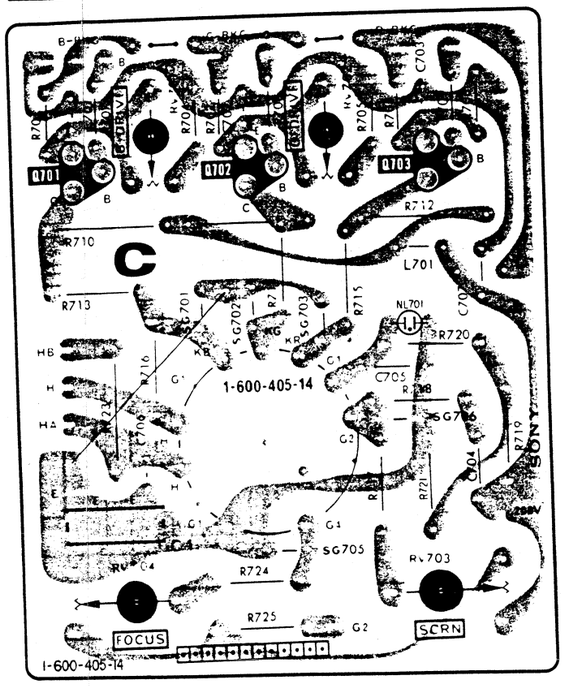
Q, IC	IC003	006, 005	009	010, 008	007	IC002, 003, 002	IC001	001	Q, IC
D	009	002	008	007	006	004		001	D



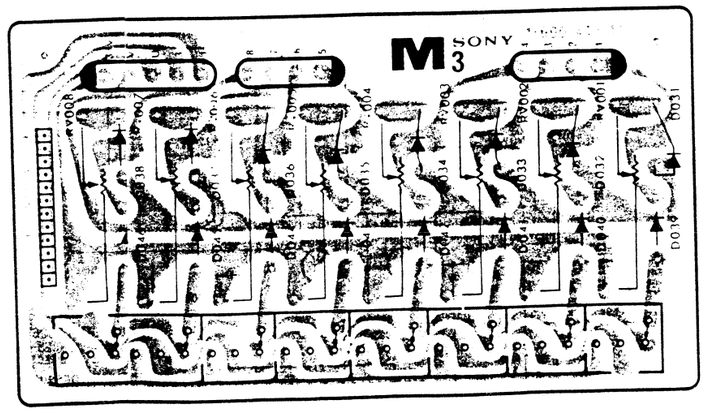
M1 (CHANNEL SW)



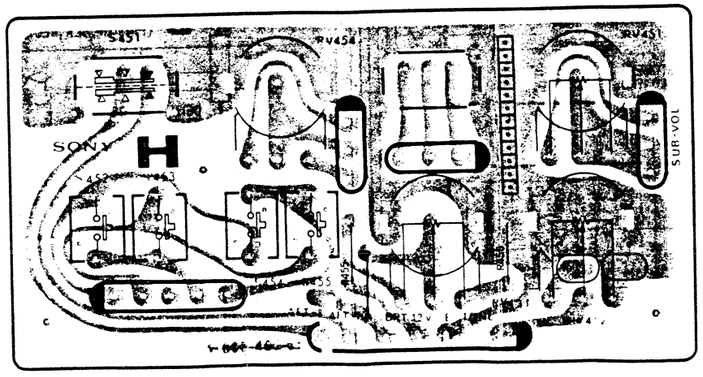
C (R.G.B OUT)



M3 (CHANNEL SELECT CHANNEL PRESET)



H (CUSTOMER CONTROL)



K (AUDIO, OUT)

B CHROMA, Y AMP AUTO SW MATRIX

| | | |

D PROTECT, REG HV DEF, CONVERGENCE PIN AMP, BLK, RECT

Q	D	ADJ
	603	RV601
608 601		
607	612	
603	613 611	
681 609		
602	610 614	
604	604 601	
651	602	
	608	
	609	
652	606	
	651	
605	605	
582		
	551	
	575	RV581 RV551 RV554
	811	
	502 501	
581		
553		
551	553	RV501 RV582
554		RV553
552		RV552
	552	
	505	
	554	
	555	
	504	
501	802	
503		
	801	
502	503	

Q	D	ADJ